

IN THE CLAIMS

1. (Currently amended) A method for releasing a microstructure for fabricating a device of a micro electro mechanical system (MEMS), comprising the steps of:
supplying bubbled alcohol vapor ~~bubbled as a catalyst~~ with anhydrous HF;
maintaining a temperature of the supplying device and a moving path of the anhydrous HF and the alcohol to be higher than a boiling point of the alcohol;
performing a vapor etching by controlling a temperature and a pressure to be within the vapor region of a phase equilibrium diagram of water; ~~and, thereby~~
removing silicon oxide of a sacrificial layer on a lower portion of the microstructure.

82 wherein the vapor etching via a slow gas-solid reaction is controlled by formation of HF_2 - resulted from ionization reaction between anhydrous HF and alcoholic vapor adsorbed physically on the silicon oxide surface, while a temperature inside of an etching chamber is maintained to be higher than that of a substrate so as to discharge the water generated during the vapor etching without condensation.

2. (Currently amended) The method of claim 1, wherein the vapor etching is performed under a pressure ranged to be 2575 torr, anhydrous HF partial pressure is 2-50 torr, and alcoholic vapor partial pressure is 0.1-10 torr.

3. (Currently Amended) The method of claim 1, wherein the vapor etching is performed under a ~~temperature ranged to 25-80°C~~ a condition that a wafer temperature ranges 25-75°C so as to increase physical adsorption amounts of reactant molecules adsorbed on the silicon oxide surface and an etching chamber temperature ranges 25-80°C so as to discharge the gas without condensing the water.

4. (Original) The method of claim 1, wherein a step of performing a wet etching of a part of the silicon oxide precedes the step of performing the vapor etching.
5. (Original) The method of claim 1, wherein the silicon oxide of a sacrificial layer is any one component selected from the group consisting of TEOS, LTO, PSG, BPSG and a thermal silicon oxide.
6. (Original) The method of claim 1, wherein the alcohol is any one component selected from the group consisting of methanol, isopropyl alcohol and ethanol.
7. (Original) The method of claim 1, wherein the MEMS device has a laminated layer structure or a monocrystal silicon structure.
8. (Currently amended) A method for removing silicon oxide of a sacrificial layer for a microstructure in a MEMS device, comprising:
~~characterized by removing the silicon oxide of a sacrificial layer with by~~
performing a vapor etching using anhydrous HG and alcohol by controlling a
temperature and a pressure inside of an etching chamber to be within the region of a
vapor of a phase equilibrium diagram of water,
wherein the temperature of the etching chamber is maintained to be higher
than that of the substrate so as to discharge the gas without condensing the water
and to control physical adsorption amounts of reactant molecules adsorbed on the
sacrificial layer.
9. (Original) The method of claim 8, wherein the pressure inside of the etching chamber is ranged to be 25-75 torr.
10. (Original) The method of claim 8, wherein the temperature inside of the etching chamber is ranged to be 25-80°C.